POTENTILLA CRISTAE (ROSACEAE), A NEW SPECIES FROM NORTHWESTERN CALIFORNIA

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Abstract

Potentilla cristae is known only from Cory Peak, Mt. Eddy, and Marble Mountains in the Klamath Region of northwestern California. It has been confused with *P. flabellifolia*; it is apparently related to *P. brevifolia*.

Our *Potentilla cristae* joins an old and still growing list of Klamath Region endemics (cf. Stebbins and Major 1965). According to Gilbert Muth (pers. comm., unpubl. floristic list for Boulder Peak and adjacent areas) and Jennifer Whipple and Edward Cope (unpubl. ecological survey for a proposed Mt. Eddy research natural area, on file at HSC), at least four other Klamath Region endemics that are also apparently restricted to basic or ultrabasic substrates have ranges that overlap that of *P. cristae* at Cory Peak (CP), Mt. Eddy (ME), and/or Marble Mountains (MM): *Epilobium siskiyouensis* (CP, ME, MM), *Veronica copelandii* (CP, ME, MM), *Eriogonum alpinum* (CP, ME), and *Eriogonum siskiyouense* (CP, ME).

Potentilla cristae Ferlatte & Strother, sp. nov. (Fig. 1).—Type: California, Siskiyou Co., China Mt. SE, 7.5′ Quad., T40N, R6W, sect. 18, 41°19′34″N, 122°35′56″W, on divide between Scott River and Trinity River drainages, ca. 13 mi SW of Weed, narrow depression on ridge east of Cory Peak, in rocky swale just E of small pond, ca. 2300 m (7500 ft), ultrabasic substrate, 10 Aug 1988, *W. J. Ferlatte 2116* (holotype, UC).

A *P. brevifolio* foliis trifoliolatis, indumentis stipitato-glandulosis et hirsutis, piliis nonglandulosis grossis 1–3 mm longis, et acheniis cristatis alis subcircumnexis 0.05–0.1 mm latis differt.

Caespitose, often mat-forming, perennials from branched root-crowns surmounting an elongate taproot. Leaves, flowering stems, pedicels, and calyces, including bractlets, minutely stipitate-glandular and thinly hirsute with rather coarse, unicellular hairs 1–3 mm

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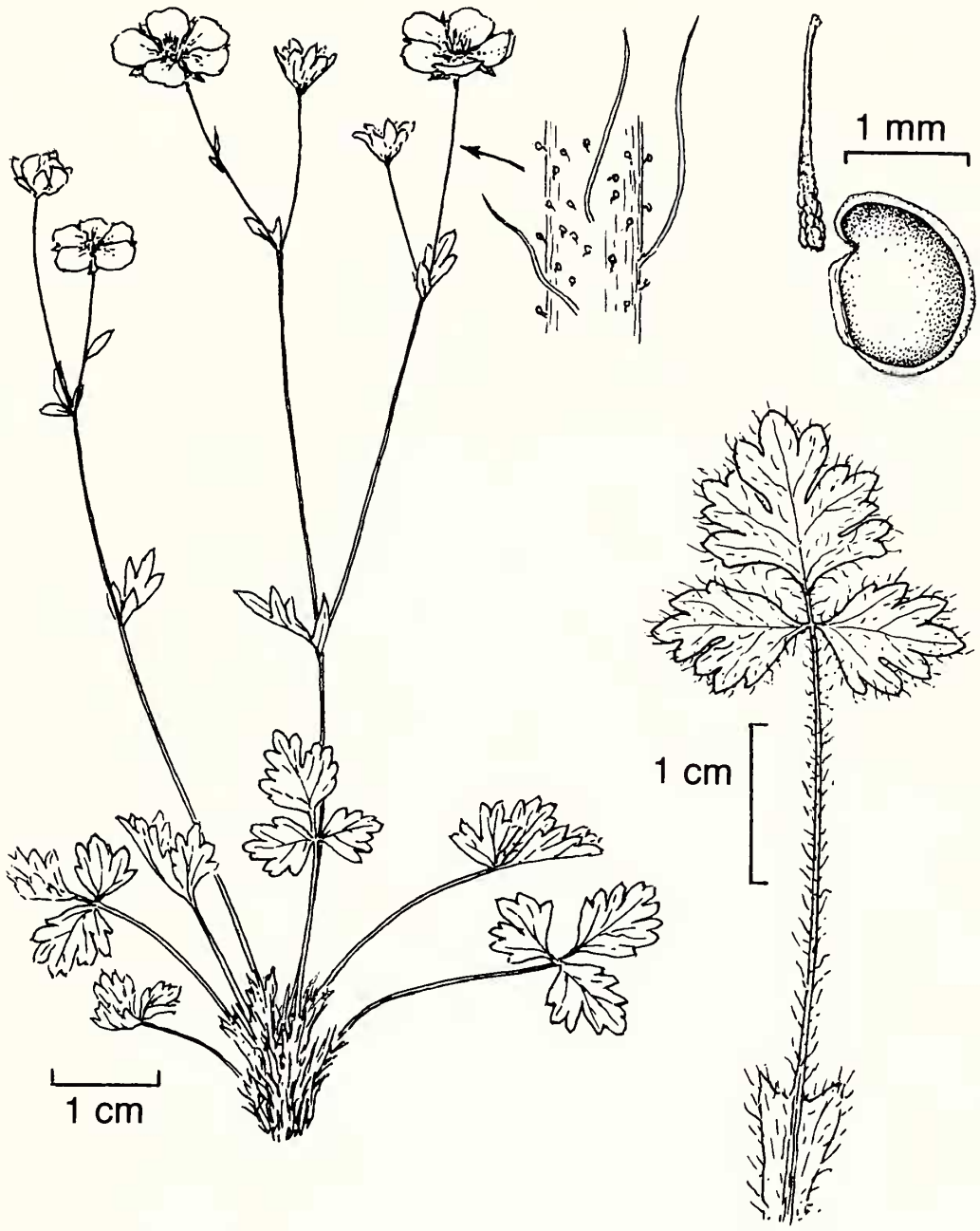

FIG. 1. *Potentilla cristae.* Habit, basal leaf, and achene.

long, these concentrated on margins and abaxial veins, more scattered on adaxial surfaces. Stipules lance-ovate to ovate, 3–5(–12+) mm long, adnate to base of petiole; leaves trifoliolate on petioles 1–3+ cm long; leaflets flabellate, deeply 3–5-lobed and coarsely toothed, 5–11 mm long, the laminae typically somewhat coriaceous and more cupped than plane. Flowering stems slender, reddish, 3–10(–15+) cm long, bearing reduced, foliaceous bracts. Flowers 1–4+ per cyme; hypanthium shallow, 3–6+ mm diam.; sepals lance-ovate, 3–5 mm long, alternating bractlets broadly ovate, 2–4 mm long; petals bright yellow, broadly ovate to rounded-rhombic, 3–4 mm long, cuneate at base, scarcely clawed, slightly emarginate; stamens ca. 20, filaments 0.7–1.7 mm long, anthers ca. 0.5 mm long and wide, pollen

grains tetrahedral, 29(27–31) μm in diam., stainability ca. 100 % (n = 100) in lactophenol cotton-blue; receptacles convex becoming conic, to ca. 2 mm high in fruit, hirsute with white hairs to 1.5 mm long; pistils 25–30, ovaries attached laterally ca. ⅓ from base, styles stoutish, ca. 1.8–2 mm long, inserted laterally, dilated and glandular at base; achenes brown, laterally compressed, reniform in outline, 1–1.2+ mm long, cristate, ca. ¾ of the circumference bearing a conspicuous (under a lens) wing 0.05–0.1 mm wide, the surface minutely foveolate (at ca. 20×) and obscurely rugulose. Chromosome number: $2n=42$.

PARATYPES: All California. Siskiyou Co.: China Mt. SE, 7.5′ Quad., T40N, R6W, sect. 18, N-facing slope E of Cory Peak, above headwaters of Cabin Meadow Creek, ca. 2200 m (7200 ft), open rocky slope, ultrabasic substrate, 10 Aug 1988, *W. J. Ferlatte 2115* (RSA, UC); same site as *2115,* 5 Aug 1989, *Ferlatte 2120* (UC); China Mt. Quad., T40N, R6W, sect. 18, ridge E of Cory Peak, in rocky swale just E of small pond, ca. 2300 m (7500 ft), ultrabasic substrate with *Carex microptera, Juncus mertensianus,* 10 Aug 1988, *W. J. Ferlatte 2117* (UC); same site as *2117,* 5 Aug 1989, *W. J. Ferlatte 2122* (UC; voucher for chromosome count, $2n=21_{II}$); rocky fell-field of summit region of Mt. Eddy, ca. 2750 m (9000 ft), 13 Aug 1967, *L. R. Heckard 1702* (JEPS); wet gravel on the slope above the head of Wagon Creek on Mt. Eddy in the Hudsonian Zone at ca. 2560 m (about 8400 ft), 3 Jul 1922, *A. A. Heller 13678* (DS); Mt. Eddy, Dobkins Lake, ca. 1825 m (6000 ft), 11 Jun 1934, *D. H. Johnson s.n.* (UC); near summit of Cory Peak, China Mt. Quad., T40N, R6W, sect. 18, ca. 2150 m (7000 ft), on seasonally moist ultrabasic gravels, 3 Aug 1987, *M. A. Knight 951* (UC); scattered on dry limestone [?] in sink, NE face of Marble Mountain, T43N, R12W, sect. 15, ca. 2150 m (7000 ft), 4 Sep 1966, *J. Major et al. s.n.* (DAV); ridge W of Boulder Peak [ca. 41°30′N, 123°W], ca. 2225 m (7600 ft), 10 Aug 1969, *G. J. Muth 1319* (CAS, KNFY). Trinity Co.: progeny of *R. Raiche and K. Zadnik 70714* (UC; from near Siskiyou Co. line, Mt. Eddy, near crest of N-facing cirque above Deadfall Lakes, ca. 2400 m (7880 ft), serpentine talus and fell-field slopes where snow banks linger longest, 1 Sep 1987) grown in Univ. Calif. Bot. Gard. (accesson number 87.1588), pressed 11 Jul 1988 (UC; voucher for chromosome count, $2n=21_{II}$).

We suggest crested potentilla as an appropriate common name for this species, in reference to the crests or narrow wings that nearly surround the achenes. We also point out that the epithet *cristae* refers both to the morphology of the achenes and to the association of the taxon with the Pacific Crest Trail.

Potentilla cristae is known only from the Klamath Region of northern California: on Cory Peak and Mt. Eddy on the boundary between

TABLE 1. COMPARISON OF *POTENTILLA CRISTAE* WITH *P. BREVIFOLIA, P. FLABELLIFOLIA,* AND *P. NORVEGICA* SUBSP. *MONSPELIENSIS.*

Character	*P. cristae*	*P. brevifolia*	*P. flabellifolia*	*P. norvegica*
Leaf form	Trifoliolate	Pinnate	Trifoliolate	Trifoliolate
Indument				
Stipitate-glandular	Yes	Yes	Little, if at all	No
Other hairs (mm)	Coarse, 1–3	Fine, 1–2	Fine, 0.5–1	Coarse, 1–2.5
Petal length (mm)	Mostly 3–4	Mostly 4–5	Mostly 6–10	Mostly 3–4
Styles	Stoutish, dilated and glandular at base	Slender, weakly, if at all, glandular at base	Slender, not dilated or glandular at base	Stout, ± fusiform and glandular
Achenes	Crested, foveolate, rugulose	Not crested, smooth, not rugulose	Not crested, smooth, not rugulose	Not crested, foveolate, rugulose

Siskiyou and Trinity counties and from Boulder Peak and Marble Mt. in Siskiyou Co. The sites are all gravelly to cobbly, open slopes or depressions where snow normally lingers into early summer at ca. 1830 to 2750 m. The plants are apparently restricted to basic or ultrabasic substrates. Associated trees found at the type locality included scattered, stunted individuals of *Pinus monticola, P. balfouriana, P. jeffreyi, P. contorta,* and *Abies concolor*; *Potentilla cristae* grew with *Carex microptera, Juncus mertensianus, Poa pringlei, Ivesia gordonii, Silene grayi, Arenaria nuttallii* subsp. *gregaria,* and *Veronica copelandii.*

In Munz (1959) and Ferlatte (1974), *Potentilla cristae* will key to, or near, *P. flabellifolia,* from which it differs in indument, flower size, and achene morphology (cf. Table 1). In an early draft of a revision of western North American potentillas, Dr. Barbara Ertter (pers. comm.) treated *P. cristae* as near *P. brevifolia,* a species known only from Idaho, Nevada, and Oregon. *Potentilla cristae* and *P. brevifolia* differ most noticeably in leaf morphology, indument, and achene ornamentation (cf. Table 1). In its glandular style bases and weakly developed rugae on the achenes, *P. cristae* is similar to plants that have been called *P. norvegica* subsp. *monspeliensis.* We summarize salient morphological distinctions between *P. cristae* and these taxa in Table 1.

Base chromosome number for *Potentilla* is evidently $x=7$ and many species have been reported to be polyploid. For two samples of *P. cristae* (see citations of paratypes), we observed $2n=42$ ($2n=21_{II}$ at diakinesis and first metaphase of meiosis in pollen parent cells);

the species is apparently hexaploid. Löve (1954) reported $2n=56$ (i.e., the octaploid level) for *P. norvegica* subsp. *monspeliensis* (as *P. norvegica*). Pojar (1973) reported $n=14$ (the tetraploid level) for *P. flabellifolia* from British Columbia. We found no report of chromosome number for *P. brevifolia.*

Acknowledgments

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